

REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 6-10, 15-18, and 26-68 are currently pending, with Claims 6-10 and 15-18 withdrawn as directed to a non-elected invention. No claims have been amended herewith.

In the outstanding Office Action, Claims 26, 27, 29, 38, 42, 45-49, 51, 53, 62, and 66 were rejected under 35 U.S.C. § 103(a) as being unpatentable over “admitted prior art Figures 1-2D” (hereinafter “Figures 1-2D”) in view of U.S. Patent No. 5,479,054 to Tottori (hereafter “the ‘054 patent”) and U.S. Patent No. 5,747,370 to Lee (hereinafter “the ‘370 patent”); Claim 50 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Figures 1-2D, the ‘054 patent, and the ‘370 patent, further in view of U.S. Patent No. 5,766,996 to Hayakawa et al. (hereinafter “the ‘996 patent”); Claims 28 and 52 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Figures 1-2D, the ‘054 patent, and the ‘370 patent, further in view of U.S. Patent No. 4,467,452 to Saito et al. (hereinafter “the ‘452 patent”); Claims 30, 31, 54, and 55 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Figures 1-2D, the ‘054 patent, and the ‘370 patent, further in view of U.S. Patent No. 5,731,130 to Tseng (hereinafter “the ‘130 patent”); Claims 32, 33, 56, and 57 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Figures 1-2D, the ‘054 patent, and the ‘370 patent, further in view of U.S. Patent No. 4,866,003 to Yokoi et al. (hereinafter “the ‘003 patent”); and Claims 34-37, 39-41, 43, 44, 58-61, 63-65, 67, and 68 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Figures 1-2D, the ‘054 patent, and the ‘370 patent, further in view of U.S. Patent No. 6,211,548 B1 to Ma (hereinafter “the ‘548 patent”).

Claim 26 is directed to a nonvolatile semiconductor memory device, comprising: (1) a semiconductor substrate having a peripheral circuit region and a memory cell region; (2) a

first element region provided in the peripheral circuit region; (3) a second element region provided in the memory cell region; (4) a first element isolation region provided in the semiconductor substrate, the first element isolation region isolating the first element region; (5) a second element isolation region provided in the semiconductor substrate, the second element isolation region isolating the second element region; (6) a first transistor having source and drain diffusion layers and provided in the first element region; (7) a second transistor having source and drain diffusion layers each provided in the second element region; and (8) an insulating film covering the first and second transistors, *the insulating film being harder for an oxidizing agent to pass therethrough, compared with a silicon oxide film, the insulating film being oxidized.*

Regarding the rejection of Claim 26, the Office Action asserts that Figures 1-2D discloses everything in Claim 26 with the exception of (1) an insulating film being harder for an oxidizing agent to pass therethrough compared with a silicon oxide film, and (2) the insulating film being oxidized, and relies on the '054 and '370 patents, respectively, to remedy those deficiencies.

Figures 1-2D illustrate a cross-sectional view of a conventional NAND-type EEPROM. However, as admitted in the Office Action, Figures 1-2D fail to disclose an oxidized insulating film being harder for an oxidizing agent to pass therethrough, compared with a silicon oxide film.

Turning now to the secondary references, the '054 patent is directed to a semiconductor device with improved planarization properties that includes an insulating film 2 that contains silicon nitride. However, Applicants submit that the '054 patent fails to disclose an oxidized insulation film. The '370 patent is directed to a method of manufacturing a nonvolatile semiconductor device and discloses an insulating film 34 formed

by thermally oxidizing a silicon substrate 30 and a control gate 31.<sup>1</sup> Accordingly, the '370 patent fails to disclose an insulation film harder for an oxidizing agent to pass therethrough compared with a silicon oxide film, since the '370 patent merely discloses a silicon oxide film.

In the outstanding Office Action, the stated motivation for combining the teachings of Figures 1-2D and the '054 and '370 patents is because those references are "from the same field of endeavor (semiconductor devices)."<sup>2</sup> The Office Action must show that the motivation for the combination can be found in the prior art. However, the Office Action fails to point to a specific statement in either the '054 or '370 patents that suggests or provides motivation for combining the teachings of those references. The Office Action has also failed to show that the motivation existed in the art, although not in the '054 or '370 patents. Thus, the Office Action has failed to show factually why one of ordinary skill in the art would have been motivated to select, from all available teachings, the disclosure of the silicon nitride insulating film 2 in the '054 patent and the disclosure of the silicon oxide film 34 in the '370 patent to create an oxidized insulating film being harder for an oxidizing agent to pass therethrough compared with a silicon oxide film in a modified version of the EEPROM memory device shown in Figures 1-2D. The Federal Circuit held last year in In Re Sang-Su Lee that:

"[t]he factual inquiry whether to combine references must be thorough and searching. It must be based on objective evidence of record. This precedent has been reinforced in myriad decisions, and cannot be dispensed with....The factual question of motivation is material to patentability, and cannot be resolved on subjective belief and unknown authority."<sup>3</sup>

Thus, Applicants respectfully submit that a *prima facie* case of obviousness has not been established since no facts (only unsupported conclusions) have been cited in the record.

<sup>1</sup> See Figure 3 of the '370 patent.

<sup>2</sup> Page 3 of May 22, 2003, Office Action.

<sup>3</sup> In Re Sang-Su Lee, 277 F.3d 1338 (Fed. Cir. 2002). Emphasis Added.

Accordingly, the rejection of Claim 26 (and dependent Claims 27, 29, 38, and 42) should be withdrawn.

Further, Applicants submit that the Office Action is simply engaging in a process of hindsight reconstruction of Applicant's invention without providing motivation to combine Figures 1-2D, the '054 patent, and the '370 patent. The Office Action has not provided evidence that, absent Applicants' specification, one of ordinary skill in the art would have even thought to address the problem. For example, the advantages arising from covering the first and second transistors with an insulating film harder for an oxidizing agent to pass therethrough, compared with a silicon oxide film, are described, e.g., on page 18 of the original specification. Moreover, the advantages arising from oxidizing the insulating film are described, e.g., on pages 26 and 30 of the original specification. However, Applicants respectfully submit that the '054 and '370 patents do not disclose or suggest the advantages noted above. In particular, since the insulating film 2 of the '054 patent is not oxidized, the advantages described on pages 26 and 30 of the present application cannot be obtained and are not suggested by the '054 patent. Further, since the insulating film 34 of the '370 patent is a silicon oxide film, the insulating advantages described on page 18 of the present application cannot be obtained and are not suggested by the '370 patent. Accordingly, for these additional reasons, Applicants respectfully submit that a *prima facie* case of obviousness has not been established and the rejection of Claim 26 should be withdrawn.

Claim 45 recites limitations analogous to the limitations recited in independent Claim 26. Accordingly, for the reasons stated above for the patentability of Claim 26, Applicants respectfully submit that a *prima facie* case of obviousness has not been established and that the rejection of Claim 45 (and dependent Claims 46-49, 51, 53, 62, and 66) should be withdrawn.

Regarding the rejection of the remaining dependent claims under 35 U.S.C. § 103, Applicants respectfully submit that the '996, '452, '130, '548, and '003 patents fail to remedy the deficiencies of Figures 1-2D, the '054 patent, and the '370 patent, as discussed above. Accordingly, Applicants respectfully submit that a *prima facie* case of obviousness has not been established and the rejections of Claims 28, 30-37, 39-41, 43, 44, 50, 52, 54-61, 63-65, 67, and 68 should be withdrawn.

Thus, it is respectfully submitted that independent Claim 26 (and dependent Claims 27-44) and independent Claim 45 (and dependent Claims 46-68) patentably define over any proper combination of Figures 1-2D and the '054, '370, '996, '452, '130, '003, and '548 patents.

Consequently, in light of the above discussion, the outstanding grounds for rejection are believed to have been overcome. The application herewith is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.



Eckhard H. Kuesters  
Attorney of Record  
Registration No. 28,870  
Kurt M. Berger, Ph.D.  
Registration No. 51,461



22850

Tel: (703) 413-3000  
Fax: (703) 413-2220  
EHK/KMB:law  
I:\ATTY\KMB\00397692-AM.DOC